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4

D407-667-105TRN
Job Sheet 196124



Part No: D407-667-105TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 6/7/19

Job Tracking No:

Due Date: 6/17/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG D407-667-145 REV.D IPP Rev:a 08.02.28 new issue EC IPP Rev B 08.04.02 Removed polish EC verified by: DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Mori Seiki TL-40 - 1	1 pcs	6/17/19	6/17/19	1.00	1.25	Mori Seiki TL-40 - 1		DAS 66 2019/06/30
110	QC 2	1 pcs	6/17/19	6/17/19	0.00	0.00	QC 2 - 1		9-89
							QC 2 - 12		
							QC 2 - 14		
							QC 2 - 17		
							QC 2 - 19		
							QC 2 - 2		
							QC 2 - 20		
							QC 2 - 22		
							QC 2 - 23		
							QC 2 - 25		
							QC 2 - 32		
							QC 2 - 33		
							QC 2 - 35		
							QC 2 - 39		
							QC 2 - 4		
							QC 2 - 40		
							QC 2 - 44		
							QC 2 - 45		
							QC 2 - 48		
							QC 2 - 49		
							QC 2 - 50		
							QC 2 - 51		
							QC 2 - 52		
							QC 2 - 57		
							QC 2 - 62		
							QC 2 - 63		
							QC 2 - 8		DAS 66 2019/06/30
							QC 2 - 66		9-89
							QC 2 - 64		

					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	DAS
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	6/17/19	1.00 1.12	Mori Seiki TL-40 - 1 - B4B	66 2019/09/03
130	QC 2	1 pcs	6/17/19	0.00 0.00	QC 2 - 1	9-89
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	DAS
					QC 2 - 66	66 2019/09/03
					QC 2 - 64	9-89
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
140	QC 8	1 pcs	6/17/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	DAS
					QC 8 - 67	76
						9-89

					QC 8 - 1 (A)	
					QC 8 - 47	
					QC 8 - 40	
					QC 8 - 52	
					QC 8 - 23	
					QC 8 - 57	
145 Crosstubes - 2 - B4B	1 pcs	6/17/19	0.00 0.36		Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	BB SAT/30/20
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	
150 Crosstubes - 3 - B4B	1 pcs	6/17/19	0.00 0.40		Crosstubes - 1 - B4B	BEB 19-10-26
					Crosstubes - 2 - B4B	
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	
160 QC 7	1 pcs	6/17/19	0.00 0.00		QC 7 - 10	
					QC 7 - 13	
					QC 7 - 14	
					QC 7 - 15	
					QC 7 - 17	
					QC 7 - 18	
					QC 7 - 19	
					QC 7 - 2	
					QC 7 - 28	
					QC 7 - 3	
					QC 7 - 30	
					QC 7 - 34	
					QC 7 - 36	
					QC 7 - 37	
					QC 7 - 41	
					QC 7 - 47	
					QC 7 - 48	
					QC 7 - 51	
					QC 7 - 58	
					QC 7 - 59	
					QC 7 - 60	
					QC 7 - 9	
					QC 7 - 68	
					QC 7 - 50	
					QC 7 - 67	
					QC 7 - 40	
					QC 7 - 24	
					QC 7 - 43	
170 Packaging 3-1 - Stock - B4B	1 pcs	6/17/19	0.00 0.00		Packaging 3 - 1 - B4B	
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	

209-111
DAS
76
9-89

				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	20 2019-11-1
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	DAG
180 QC 21 - SA	1 pcs	6/17/19	0.00 0.00	QC 21 - SA - 21	21
				QC 21 - SA - 70	9-89
				QC 21 - SA - 53	NOV 01 2019

Part Op 100 - 1- Fill tube with sand & install plugs 407-105 on both ends as per Folio FA249 2- Turn both side of tube 3- Turn first Descriptions: taper section on both side as per folio FA249

110 - (QC2- Inspect parts off machine FAI/FAIB)

120 - 1- Turn second taper on both side 4- Scribe part # and batch # using vibrating stylus on the cuff as per Dwg D407-667-145 5- Ultra sound the crosstube as per FAI. "wall thickness mesurment" at given location.

130 - (QC2- Inspect parts off machine FAI/FAIB)

140 - (QC8- Inspect parts - second check)

145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150 - 1- handfinish X-TUBE INSIDE AND OUT

160 - (QC7-Inspect Chemical Conversion Coat)

170 - (Identify as per dwg & Stock Location:) LOCATION : LG014

180 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6010-115	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F123975

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6010-115	1	110	0

Part Specifications

Specifications could not be found.



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Plex 6/7/19 7:56 AM Dart.lajeunesse.marie

Container No: S210489



Part: D407-667-105TRN

Job No: 196124

Serial No/Batch: S210489

Revision: D

Inspector:

Exp Date:

Instructions:

Date: 06/30/19

(4)

DART AEROSPACE LTD	Work Order:	196124
Description: Crosstube Assembly	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: D		Page 1 of 2

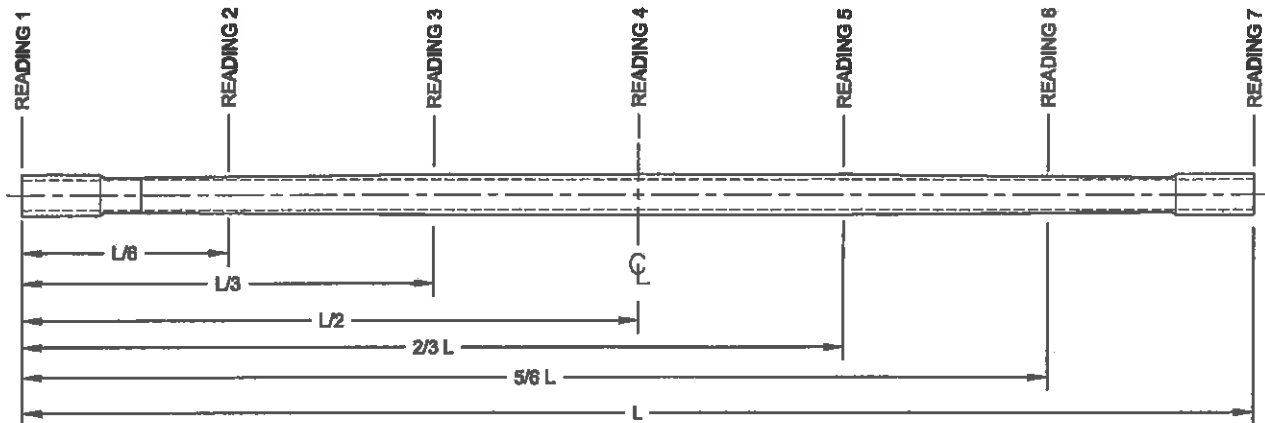
FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.241	✓		cnc-04	
	1.865	+0.005/-0.000	1.870	✓		cnc-08	
	1.878	+0.005/-0.000	1.882	✓		↓	
	1.970	+0.005/-0.000	1.974	✓			
	2.030	+0.005/-0.000	2.035	✓		cnc-04	
	2.165	+0.005/-0.000	2.170	✓		"	
	0.125	+/-0.010	.123	✓		cnc-08	
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	R0.063	+/-0.010	.063	✓		"	
	4.438	+/-0.030	4.439	✓		cnc-08	
SIDE B	2.240	+0.005/-0.000	2.241	✓		cnc-04	
	1.865	+0.005/-0.000	1.870	✓		cnc-08	
	1.878	+0.005/-0.000	1.882	✓		↓	
	1.970	+0.005/-0.000	1.974	✓			
	2.030	+0.005/-0.000	2.035	✓		cnc-04	
	2.165	+0.005/-0.000	2.170	✓		"	
	0.125	+/-0.010	.120	✓		cnc-08	
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	R0.063	+/-0.010	.063	✓		"	
	4.438	+/-0.030	4.436	✓		cnc-08	
	113.20	+/-0.020	113.220	✓		tape	

(4)

DART AEROSPACE LTD	Work Order: 196124
Description: Crosstube Assembly	Part Number: D407-667-145
Inspection Dwg: D407-667-145 Rev: D	Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.310	.314	.305	.294	.020	0.042"
READING 2 L= 8.867	.169	.173	.166	.161	.012	
READING 3 L= 37.734	.268	.267	.262	.254	.014	
READING 4 L= 56.700	.319	.311	.312	.313	.008	
READING 5 L= 75.467	.266	.284	.275	.252	.032	
READING 6 L= 94.333	.171	.188	.177	.169	.019	
READING 7 L= 113.20	.305	.316	.305	.293	.023	

Calibration Result

Actual Block Thickness: 100-500

Sitescan 250 Measured Thickness: 100-500

Measured by: DAS 66	Audited by:	Preliminary Approval:
Date: 2019/09/03	Date:	Date:

Rev	Date	Change	Revised by	Approved
C	09.06.11	Dwg Rev updated	KJ	
D	11.06.21	Tolerance revised for 4.438 dimension	KJ	
E	12.06.04	Wall thickness form added	KJ	
F	19.03.27	Dwg Rev updated	MS	

Item	Qty	Part Number	Description
1	X	D407-867-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3585-063-385	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NA39302B-4-10)
9	AR	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2
10	2	AN742D38	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NA51148C0332R	WASHER (OR AN880CT0L)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-987-145" AND BATCH NUMBER ON INSIDE OF CLIFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3585-063-385 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING.
- 17) SEAL EDGES WHERE AN742D38 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-281 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT.
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIONHS.

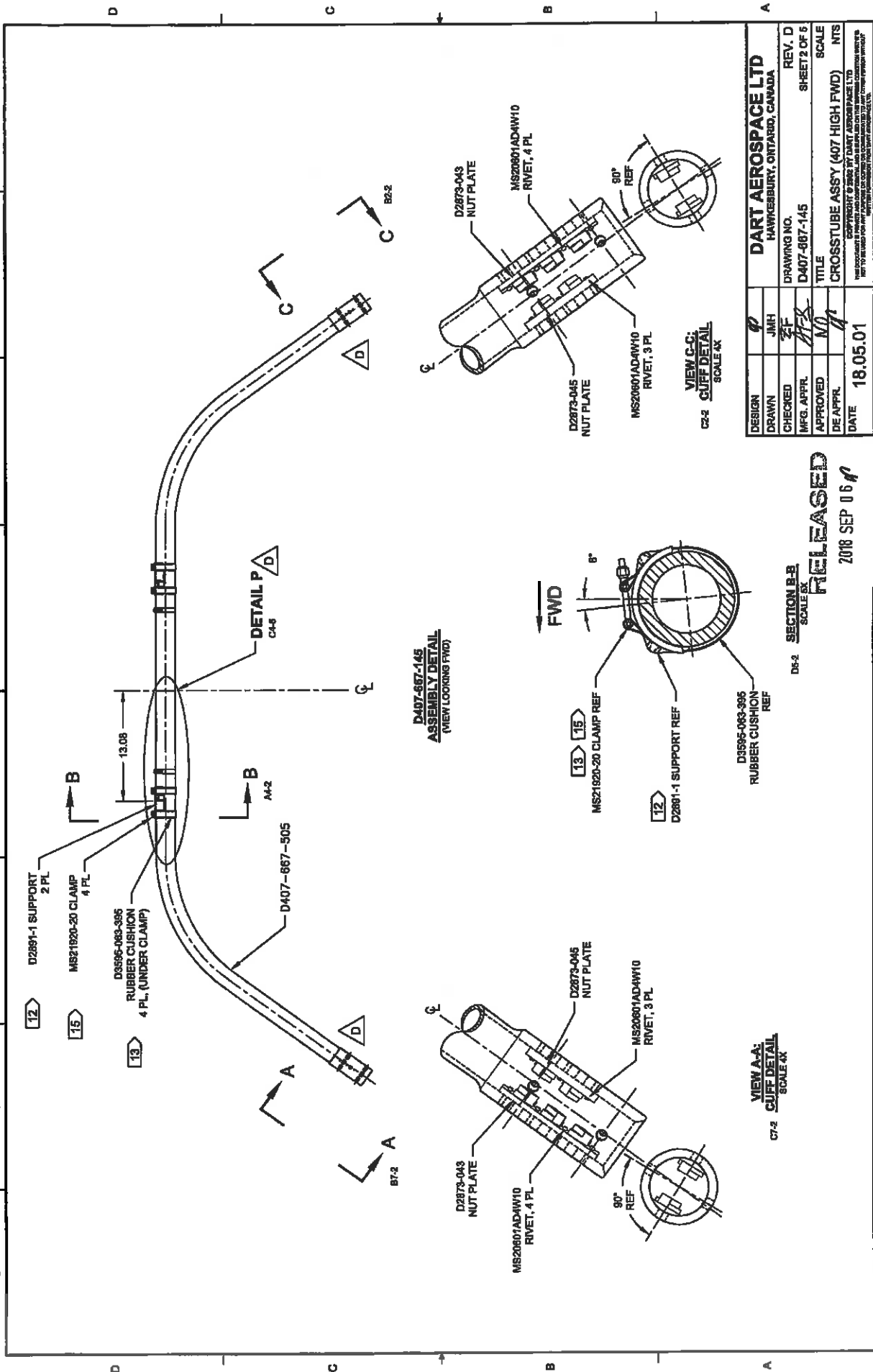
SHOP COPY
RETURN TO
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 156124
MUS
19-06-27

D	REVISE SHEET 2 ASSEMBLY DETAIL HOLE PATTERN PER CARI6-221. UPDATE PARTS LIST AND GENERAL NOTES 12 & 15 TO INCORPORATE DEO C-1. ADD ITEMS 10-14 TO PARTS LIST. ADD GENERAL NOTES 18-18 AND ADD SHEET 5 TO INCORPORATE DEO C-2.	JMH	18.05.01
C	REVISE GENERAL NOTESPART LIST (2N D7-1F) TO CURRENT STANDARDS. D3585-063 WAS D3585-400-684 (2N D4-3 & AS-2) REMOVED REF. 7 ADD TOLERANCES (2N C04.3, C04.2, C04.3); RELOCATED FLAG 46 (2N A4-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.08
B	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BH7A SKIDTUBES	PH	05.07.28
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN		JMH	
CHECKED		RF	
INFO. APPR.	DART AEROSPACE LTD DRAWING NO. D407-667-145		REV. D
APPROVED			SHEET 1 OF 5
DE APPR.			SCALE
DATE	18.05.01		CROSSTUBE ASSY (407 HIGH FWD) NTS

RELEASED

2018 SEP 06
CAN 10-77

1 2 3 4 5 6 7 8



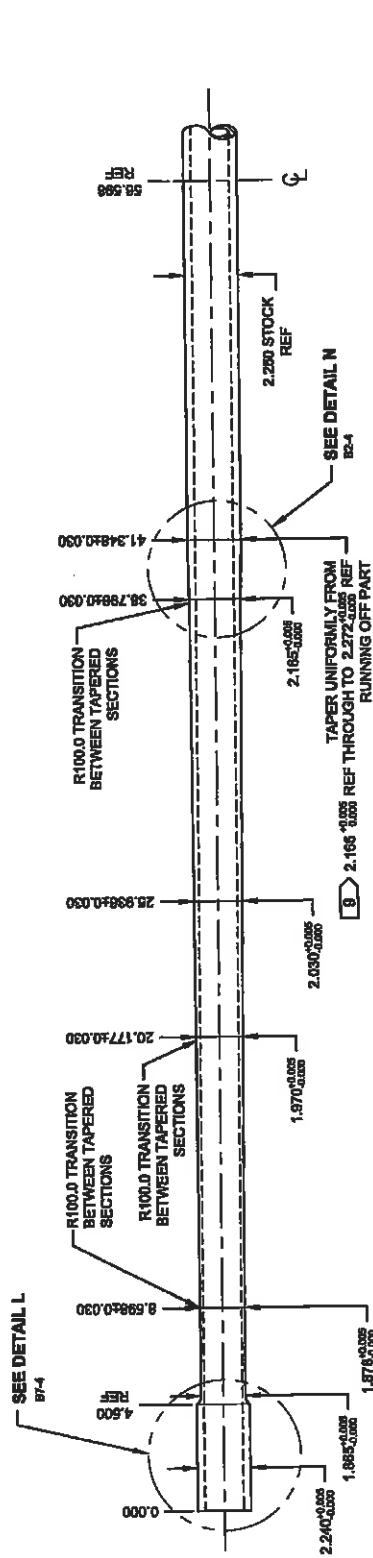
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DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA
CHECKED	ZF	
DATE	18.05.01	
REV. D		
SHEET 2 OF 5		
DRAWING NO.	D407-667-145	
DATE	18.05.01	
TITLE	CROSSTUBE ASSY (407 HIGH FWD)	
SCALE	NTS	
DATE	18.05.01	

SECTION B-B
SCALE 8X
D5-2
RELEASED
2018 SEP 06

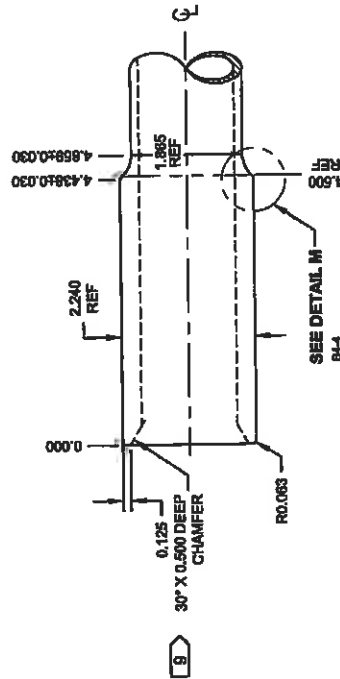
VIEW A-A:
CUFF DETAIL
SCALE 4X
C7-2

VIEW C-C:
CUFF DETAIL
SCALE 4X
C2-2

1 2 3 4 5 6 7 8

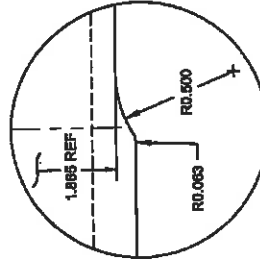


TURNING DETAIL



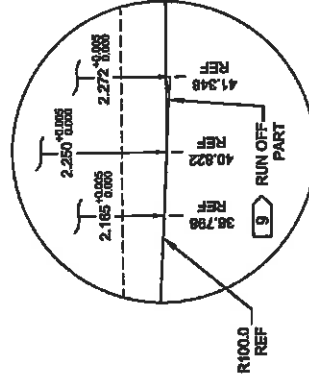
DETAIL L:
CROSSTUBE CUFF
NOT TO SCALE

D7-4



DETAIL M:
CUFF TRANSITION
NOT TO SCALE

B8-4



DETAIL N:
TAPER RUN-OFF
NOT TO SCALE

C3-4

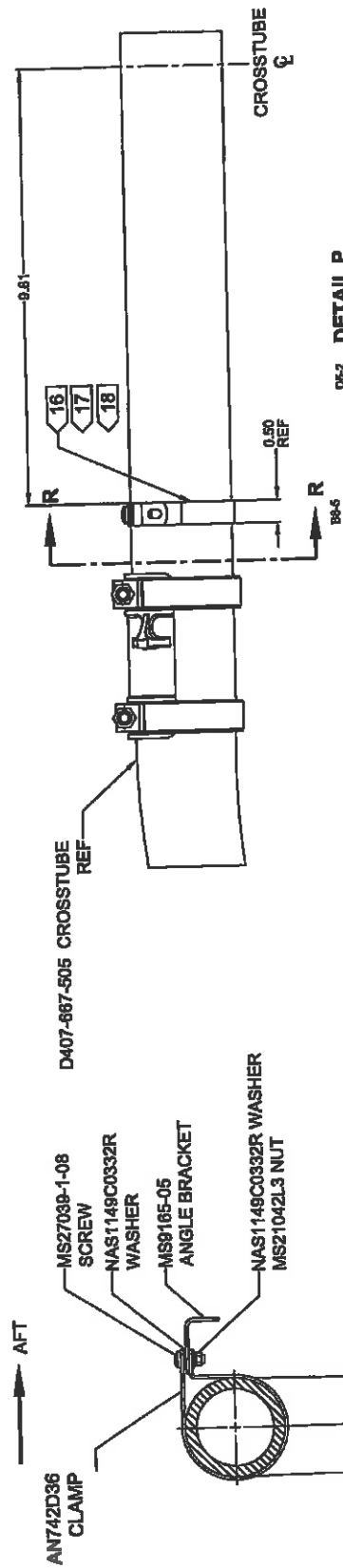
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DRAWN	JMH	HAWKSBURY, ONTARIO, CANADA
CHECKED	ZF	DRAWING NO. REV. D
MFG. APPR.	AT	D407-887-145 SHEET 4 OF 6
APPROVED	ND	TITLE SCALE
DE APPR.	ND	CROSSTUBE ASSY (407 HIGH FWD) NTS
DATE	18.05.01	DATE

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2018 SEP 06

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1 2 3 4 5 6 7 8

D C B A



05-2 DETAIL P
BONDING STRAP INSTALLATION 2 PL

04-5 SECTION R-R

DESIGN	00	DART AEROSPACE LTD HAWTHORNE, ONTARIO, CANADA
DRAWN	JMH	
CHECKED	ZF	REV. D
MFG. APPR.	000	DRAWING NO. D407-667-145
APPROVED	000	SHEET 6 OF 5
DATE	18.05.01	SCALE
		TITLE
		CROSSTUBE ASSY (407 HIGH FWD)
		NTS
		CONFIRMATION 8 2002 BY DART AEROSPACE LTD
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RELEASED
2018 SEP 06

1 2 3 4 5 6 7 8



Entered: _____ Date: _____ WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only

NCR No. _____

Job: _____

Part No. _____

DISPOSITION

Rework ☐ ☐
Scrap ☐ ☐
Use-as-is ☐ ☐

DEPARTMENT/PROCESS

Skid-tube ☐ ☐
Machining ☐ ☐
Large Fab ☐ ☐

Cross tube ☐ ☐
Small Fab ☐ ☐
Finishing ☐ ☐

Eng. (Non-AW) ☐ ☐
Prod. Eng. Coord. ☐ ☐
Rec/Store/Packaging ☐ ☐
Engineering ☐ ☐
Water Jet ☐ ☐
Supplier ☐ ☐
Quality ☐ ☐

MRB (Q51042)

Date: _____ Sequence #: _____

QTY Affected: _____

Description Work Order Deviation

Disposition

Completed By

Lead hand / Supervisor

QC / QA Coordinator

Root Cause

Operator ☐ ☐ ☐ ☐
Manufacturing Process ☐ ☐ ☐ ☐
Equip/Tooling ☐ ☐ ☐ ☐
Handling/Preservation ☐ ☐ ☐ ☐
Material ☐ ☐ ☐ ☐
Product Improvement ☐ ☐ ☐ ☐
Process Improvement ☐ ☐ ☐ ☐
Human Factors ☐ ☐ ☐ ☐

FAULT CATEGORY

Pressure/Forced	Contamination	Power Loss/Surge	Positioned Wrong
☐	☐	☐	☐
Bending	Misaligned/off center	Folio/Program	Outside Tolerance
☐	☐	☐	☐
Crushing	BOM/Route	Grain Direction	Drawing
☐	☐	☐	☐
Cracks	Broken/Damage/Defect	Weld	Finish
☐	☐	☐	☐
Crimp/Kink/Ripple/Wave/Twist	Incomplete/Unclear Instructions	Wrong Stock Pulled	Part Lost/Missing
☐	☐	☐	☐
Marks/Chatter	Drill Holes	Out of Sequence	Misread
☐	☐	☐	☐
Mislabeled	Fit/Function	Off-set/Set-up	
☐	☐	☐	

Other/Details: